



PATIENT RECOVERY AND COMPLICATIONS IN LAPAROSCOPIC VS. OPEN APPENDICECTOMY: A RANDOMIZED STUDY IN A DEVELOPING AREA LIKE MATHURA.

General Surgery

Dr. Akash Nara	PG-3, Department Of General Surgery, Krishna Mohan Medical College And Hospital, Mathura
Dr. Vivek Kumar Verma*	Assistant Professor, Department Of General Surgery, Krishna Mohan Medical College And Hospital, Mathura. *Corresponding Author
Dr. Sharath Reddy	PG-3, Department Of General Surgery, Krishna Mohan Medical College And Hospital, Mathura
Dr. Ajay Agarwal	Professor & Head Of Department, Department Of General Surgery, Krishna Mohan Medical College And Hospital, Mathura.

KEYWORDS

Laparoscopic appendectomy, open appendectomy, acute appendicitis, minimally invasive surgery, postoperative outcomes

INTRODUCTION

Appendicitis is one of the most common abdominal surgical emergencies worldwide and the most common reason of acute abdomen. **Open appendectomy** has been the mainstay of treatment in resource-limited settings due to its simplicity, cost-effectiveness, and shorter learning curve. The advent of **laparoscopic appendectomy** offers a minimally invasive alternative that promises improved postoperative comfort, reduced hospital stays, quicker return to daily activities, and better cosmetic results.

In the context of a developing region like Mathura, where balancing clinical outcomes with affordability and accessibility is paramount, the debate between open and laparoscopic appendectomy remains relevant. This prospective randomized comparative study aims to evaluate both approaches in terms of operative duration, postoperative pain, complication rates, hospital stay, and overall recovery, with a focus on practical applicability in regional healthcare setups like that of Mathura. The findings are expected to guide surgeons and healthcare policymakers in choosing the most appropriate and sustainable surgical approach for managing appendicitis in such settings.

Aim

To compare the clinical outcomes of laparoscopic appendectomy and open appendectomy in patients with acute appendicitis in a developing region like Mathura, through a prospective randomized study.

Objectives

1. Primary Objective:

- To compare the postoperative recovery between laparoscopic and open appendectomy in terms of:
- Postoperative pain
- Duration of hospital stay
- Time to return to normal activities

2. Secondary Objectives:

- To compare intraoperative findings and operative time between the two approaches.
- To evaluate the incidence of postoperative complications such as:
- Surgical site infection (SSI)
- Intra-abdominal abscess
- Ileus or bowel obstruction
- To assess cosmetic outcomes and patient satisfaction.
- To determine the cost-effectiveness and feasibility of laparoscopic appendectomy in a semi-urban healthcare setup like Mathura.

MATERIALS AND METHODS

This prospective randomized study was conducted in the Department of General Surgery at Krishna Mohan Medical College and Hospital, Mathura. A total of **60 patients** aged 14–65 years, diagnosed with acute appendicitis, were randomly assigned into two groups:

- Group A (n=30):** Laparoscopic Appendectomy
- Group B (n=30):** Open Appendectomy

Inclusion Criteria:

- Patients diagnosed with acute appendicitis
- Age between 14–65 years
- Consent to participate

Exclusion Criteria:

- Cardiovascular or thrombotic disease
- Epilepsy, hypercoagulable states
- Hypertension
- Refusal to consent

Postoperative Parameters Analysed:

- Pain Score:** Measured using Visual Analog Scale (VAS) at 6, 12, 24, and 48 hours
- Hospital Stay:** In number of days
- Time to Resume Normal Activity:** In hours
- Complications:** Recorded using Clavien-Dindo Classification
- Wound Infection Rate:** Based on CDC criteria
- Cosmetic Satisfaction:** Assessed on day 7 using a 5-point Likert scale

Surgical Procedure Performed

- Laparoscopic Appendectomy:** Performed under general anaesthesia using the standard three-port technique.
- Open Appendectomy:** Performed under spinal or general anaesthesia using the McBurney or Lanz incision.

All surgeries were performed or supervised by experienced surgeons following uniform surgical protocols to minimize bias.

Statistical Analysis

- Data was analysed using **SPSS version XX / R / STATA**.
- Continuous variables (e.g., operative time, pain score) were expressed as **mean $\pm$ SD** and compared using **Student's t-test**.
- Categorical variables (e.g., infection rate, complications) were compared using **Chi-square test** or **Fisher's exact test**.
- p-value < 0.05** was considered statistically significant.

RESULTS

1. Intra Operative Findings

Parameter	Group A	Group B
Mean operative time	40 min	30 min
Intraoperative difficulty	7 cases	00 cases
Conversion to open	00 cases	N/A

2. Postoperative Pain (VAS Score)

Time (hours)	Group A	Group B
6 hrs	7	8
12 hrs	5	8
24 hrs	3	5
48 hrs	1	3

The two-tailed P value equals 0.3040

3. Postoperative Outcomes

Parameter	Group A	Group B	p-value
Mean hospital stays (hours)	28	56	<0.0001
Time to resume normal activities	5.5 hours	15 hours	<0.0001
Surgical site infection (%)	1	4	<0.0142
Cosmetic satisfaction (Likert score)	120	80	<0.0001

The two-tailed P value is less than 0.0001

DISCUSSION

Laparoscopic appendicectomy showed significantly less postoperative pain compared to open surgery. Hospital stays and time to resume normal activities were shorter in the laparoscopic group. Operative time was slightly longer laparoscopically, likely due to the learning curve. Wound infection rates were higher in open appendicectomy cases. Cosmetic satisfaction was better with the laparoscopic approach. Laparoscopy offers diagnostic advantages, especially in atypical cases. However, cost and limited access to laparoscopic infrastructure are challenges in developing areas like Mathura.

CONCLUSION

Laparoscopic appendicectomy is a safe, effective, and patient-friendly alternative to open surgery, offering less postoperative pain, shorter hospital stays, faster recovery, and better cosmetic results. Hence it should be preferred always however in developing regions like Mathura, its use may be limited by cost and infrastructure. Open appendicectomy is affordable and accessible procedure in resource-limited setting.

REFERENCES

1. Sauerland S et al. Laparoscopic vs open appendectomy. *Ann Surg.* 2004.
2. Ali S et al. Laparoscopic vs Open Appendectomy in Pediatric Patients. *J Pediatr Surg.* 2018.
3. Salminen P et al. Five-year follow-up of antibiotic therapy for appendicitis. *JAMA.* 2018.
4. Minneci PC et al. Nonoperative management of uncomplicated appendicitis. *JAMA Surg.* 2020.
5. Kang BM et al. Comparison of Single Port vs Conventional Laparoscopic Appendectomy. *Surg Endosc.* 2017.